

REMARKS

Summary: By this Amendment and Response, claims 1, 8, 12-14, 17, 21, 24, and 27 are amended to clarify the structure and operation of the piezoelectric elements in relation to the platen, and remarks are made for the patentability of the claims over the combination of Pant and Doran.

Response To Paragraphs 2-4 of the Rejection: Claims 1-6, 8-14, 17, and 19-23 were rejected under 35 U.S.C. 103 (a) based on Pant in view of Doran, and claims 7, 15, 16, 18, and 24-28 were rejected under 35 U.S.C. 103 (a) based on Pant in view of Doran, also taken with Tietz.

It is respectfully submitted that the combination of Pant and Doran is not proper with respect to all of the pending claims because there is no teaching, motivation, or suggestion for the combination.

Initially, it is submitted that the Court of Appeals for the Federal Circuit (CAFC) has consistently held in determining whether a proposed combination of references is proper under the standard of 35 USC 103, that actual evidence of the suggestion, teaching or motivation to combine is required. For example, in In re Dembiczak, (CAFC case 98-1498, 4/28/99), the Court made it clear that the showing must be clear and particular, and that Examiner's statements unaccompanied by evidence or reasoning are inadequate to support the rejection. The Court made it clear that particular factual findings regarding the suggestion, teaching, or motivation to combine are required, since they identify factual disputes, for example. Implicit in this requirement for factual findings, is that the facts found must be correct. Additionally, the Section 103 standard is properly reviewed with respect to each reference as a whole.

The proposed combination does not meet the requirements set forth in the In re Dembiczak case because of the absence of the required clear and particular statements or evidence or other reasoning.

Here, it is respectfully submitted that there is insufficient actual evidence of the suggestion, teaching or motivation to combine. The rejection (page 2, Paragraph 2) identified asserted similarities between the references and the claims. At page 2, Paragraph 2; the general teaching of Doran ("applying pressures on the backside through the use of piezoelectric elements") was cited, and a conclusion was simply stated that it would have been obvious to substitute the Doran piezoelectric elements for the Pant pressure control means. The justification

for this substitution was asserted as being "to more accurately control pressure distribution". At page 4, Paragraph 5, the rejections further justified the combination of Pant and Doran based on an argument that (1) the Doran piezoelectric elements are the "functional equivalent" of the Pant platen air-bearing; and (2) one of ordinary skill would be motivated to use a functional equivalent to exert the pressure of the Pant device.

The proposed combination does not meet the requirements set forth in the In re Dembiczak case because of the absence of the required clear and particular statements or evidence or other reasoning.

The Reasons For The Combination Are Not Based On The References As A Whole

It is respectfully submitted that the "to more accurately control pressure distribution" justification, and the functional equivalent analysis, are based on an improper, narrow view of the references, are not based on the references as a whole as is required.

In support, the rejection provided a narrow view of Pant. In detail, the rejection asserted that Pant discloses (1) applying a force to a bottom side of a polishing belt wherein a platen is below a belt and a wafer is polished from above the belt (page 2, Paragraph 2); and (2) using varying air pressure against a backside of a polishing belt to achieve uniform polishing (page 4, Paragraph 5). The rejection acknowledged that Pant does not disclose the use of piezoelectric elements for exerting pressure.

Considering Pant as a whole, however, Pant expresses (col. 4, lines 43-44) a preference for a fluid bearing on at the platen 25. Pant may alternatively use a solid platform (col. 4, line 43). However, the rejection did not acknowledge that in Pant the express statement is made (col. 5, lines 25-28) that

"it is the presence of the fluid dispensing channels 32 and their
...openings 31 which are the required structures for the practice
of the present invention."

It is respectfully submitted that when all of Pant is considered, Pant directly teaches one skilled in the art that the Pant invention requires one to apply polishing pressure to the polishing belt by **fluid pressure**.

Further, as a whole, Pant does not teach one to look to any wafer carrier structure for teachings of wafer pressure control. Rather, Pant states (col. 3, lines 66+) that the wafer 11 resides within a wafer carrier 17, and that

“How the wafer 11 is retained in the carrier 17 is not critical to thepresent invention...What is important is that some type of a wafer carrier be used to position the wafer atop the belt 12...”

In view of this direct teaching of Pant of **standard** wafer mounting, it is respectfully submitted that there is no teaching, suggestion, or motivation in Pant to provide any polishing pressure control at the wafer carrier, nor to look to wafer carriers having wafer pressure control for other ways to control polishing belt pressure. Rather, in Pant the only polishing pressure control is via the air pressure from the platen onto the polishing belt, and that is part of Pant’s “required structures for the practice...” of the Pant invention (col. 5, lines 25-28).

Turning to Doran, after a page 2, Paragraph 2 general review of Doran, at page 4, Paragraph 5, the rejection limited the purpose for which Doran was cited. It is respectfully submitted that this limitation is an improper attempt to narrow the manner in which Doran is reviewed under the Section 103 standard, because, in a proper Section 103 analysis, each reference must be viewed as a whole. Considering Doran as a whole, Doran teaches the use of a customary “primary” platen 210 (col. 3, lines 20-44). The customary platen 210 does not have any pressure variation ability or structure. The direct teaching of Doran is to use such customary platen without any pressure variation on the underside of the belt, that is, without any type of belt pressure variation (e.g., as used by Pant at the underside of the belt). Further, the direct teaching of Doran is to change the shape of the wafer, and not the belt, to achieve polishing uniformity (see col. 3, lines 54-57).

Reference is made to the justification for the combination of Pant and Doran based on the argument that the Doran piezoelectric elements are the “functional equivalent” of the Pant air-bearing. The functional equivalent analysis is, it is respectfully submitted, based on an improper, narrow view of the references. For example, although the rejection acknowledges (page 4, paragraph 5) that the air pressure in Pant is applied to the polishing belt, the focus of the functional equivalence rejection is on force (“pressure”). That focus avoids the direct teaching of Pant of a standard wafer mounting, which mounting does not provide any polishing pressure control at the wafer carrier. Rather, the only Pant polishing pressure control is via the air-

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pressure at the platen. Significantly, the focus generally on force (pressure) ignores the facts that the Pant function is (col. 6, lines 41-44) to "compensate to increase or decrease pad-wafer contact at these points,..."; and (col. 4, lines 59-62 "fluid pressure adjustments ...compensate for the flexibility of the belt, the linear translation of the belt across the wafer surface and any other irregularities present."; for example.

As to Doran, it is respectfully submitted that such functional equivalent analysis ignores the teaching of Doran as a whole. The Doran teaching as a whole is that one does not use platen-located pressure control on the belt to achieve uniform polishing. Thus, Doran rejects the function of the Pant platen air bearing. Doran as a whole not only does not employ the function of varying the pressure applied to the platen, but (col. 5, lines 58-60) achieves the result of uniform polishing by use of a different, non-equivalent function than Pant. This different, non-equivalent function in Doran is changing in the shape of the wafer that is to be polished (col. 3, lines 63-67). Doran further clearly ignores the Pant function of making belt shape variations on polishing uniformity, and relies only on the wafer shape changes to provide the result of "improved uniformity in the polishing surface" (col. 5, lines 65-67).

It is respectfully submitted that under the Section 103 "as a whole" consideration, the focus should not be solely on "force" (pressure) as a function. Rather, one must consider such disclosures as (1) Doran's direct teaching of not mounting the Doran-taught piezoelectric elements to the platen, and (2) the Doran teaching, instead, of applying the Doran-taught piezoelectric elements to the wafer carrier for Doran's express function of changing the shape of the wafer regardless of the shape of the belt below the wafer. It is respectfully submitted that the focus only on the function "force" as the basis for the rejection improperly ignores significant aspects of Doran and Pant and thus improperly concludes that Doran would motivate combination with Pant. Improperly ignored would be:

1. Doran's placement of the piezoelectric elements: The new (combined) location would be on the platen, contrary to Doran's placement on the wafer carrier;
2. The specific way Doran's piezoelectric elements are applied for forcing: The way the Doran piezoelectric elements are applied is to the wafer, not to the polishing belt. This way shapes the wafer while the belt is allowed to assume any shape. The combined purpose is contrary to Doran, because Doran does not

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shape the belt; and expressly uses a standard platen which allows the belt to assume any shape. .

3. Omitting the wafer shaping taught by Doran: This omission would result because Pant directly teaches only controlling the belt configuration and not the wafer shape.

For these reasons, when the entire Doran reference is properly considered, it is submitted that the combination is not proper.

Moreover, since Doran does not teach any belt pressure variation, it cannot be said that in view of Doran, one would be motivated to use the Doran piezoelectric elements on the platen. It would only be in spite of the Doran teachings that one would move the Doran piezoelectric elements and thus eliminate Doran's function (wafer shaping) provided by the Doran piezoelectric elements.

Moreover, since Pant directly prefers and requires use of the fluid bearing **on the platen** for the result of uniform polishing, and directly teaches the above-quoted "some type of a wafer carrier" and not a wafer-shaping wafer carrier, it cannot properly be said that in view of Pant one would be motivated to use structure of a wafer-shape changing device to modify the air bearing of Pant.

The proposed combination does not meet the requirements set forth in the In re Dembiczak case because of the absence of the required clear and particular statements or evidence or other reasoning.

There Is Inadequate Reason For The Combination

In support, the rejection did not provide any reason for the combination other than the functional equivalent analysis and a Paragraph 2 statement that the substitution of the piezoelectric elements would be to more accurately control pressure distribution. However, as is made clear by the In re Dembiczak case, the showing for a Section 103 rejection must be clear and particular, and statements in the rejection unaccompanied by evidence or reasoning are inadequate to support the rejection. Here, it has been shown that the functional equivalent analysis is based on too narrow a reading of the references. Further, the rejection statement

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(Paragraph 2), that substitution of the piezoelectric elements would be to “more accurately control pressure distribution”, was not supported by any evidence or reasoning.

Given the fact that Pant’s function is to only modify the belt configuration, whereas Doran’s function is to only modify the wafer configuration, and the fact that each fails to recognize any importance of the other’s approach to uniform polishing, it is respectfully submitted that there is no evidence presented in the rejection by which the proposed combination of Pant and Doran would achieve polishing distribution “more accurately” as asserted at the end of rejection Paragraph 2. It is respectfully submitted that the references do not support the idea of “more accurately control pressure distribution” as a motivation for the combination.

Because of the absence of the required clear and particular statements or evidence or other reasoning, it is respectfully submitted that the combination does not meet the requirements set forth in the In re Dembiczak case. Reconsideration of the basis for the rejection of all of the claims, and withdrawal of same, are respectfully requested.

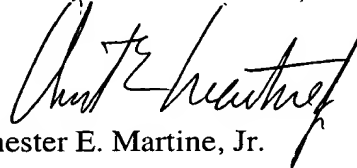
By eliminating the Section 102 rejection based on Pant alone, the rejection recognized that Pant was not a proper reference alone. In view of the arguments above with respect to the combination, allowance of all claims is believed to be in order, which action is respectfully requested.

In view of the foregoing, Applicants respectfully request reconsideration of claims 1-28, and submit that these claims are in condition for allowance. Accordingly, a notice of allowance is respectfully requested. In the event a telephone conversation would expedite the prosecution of this application, the Examiner may reach the undersigned at (408) 749-6900 x6908. If any fees are due in connection with the filing of this paper, then the Commissioner is authorized to charge such fees to Deposit Account No. 50-0805 (Order No. LAM2P220C). A copy of the

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transmittal is enclosed for this purpose.

Respectfully submitted,
MARTINE & PENILLA, LLP

A handwritten signature in black ink, appearing to read "Chester E. Martine, Jr.", written over the printed name.

Chester E. Martine, Jr.

Registration No. 19,711

710 Lakeway Drive, Suite 170
Sunnyvale, California 94085
Telephone: (408) 749-6900
Customer Number 25, 920